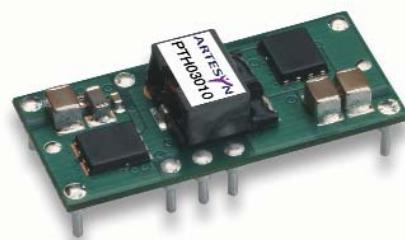


- 15 A output current
- 3.3 V input voltage
- Wide-output voltage adjust (0.8 V to 2.5 V)
- Auto-track™ sequencing\*
- Margin up/down controls
- Pre-bias start-up capability
- Efficiencies up to 93%
- Output ON/OFF inhibit
- Output voltage sense
- Point-of-Load-Alliance (POLA) compatible
- Available RoHS compliant

**NEW Product**



The PTH03010 is a next generation series of non-isolated dc-dc converters offering some of the most advanced POL features available in the industry. The primary new feature provides for sequencing between multiple modules, a function, which is becoming a necessity for powering advanced silicon including DSP's, FPGA's and ASIC's requiring controlled power-up and power-down. Other industry leading features include margin up/down controls, pre-bias start-up capability and efficiencies up to 93%. The PTH03010 has an input voltage of 2.95 V to 3.65 V and offers a wide 0.8 V to 2.5 V output voltage range with up to 15 A output current, which allows for maximum design flexibility and a pathway for future upgrades.



**2 YEAR WARRANTY**

*All specifications are typical at nominal input, full load at 25 °C unless otherwise stated  
 $C_{in} = 470 \mu F$ ,  $C_{out} = 0 \mu F$*

**SPECIFICATIONS**

**OUTPUT SPECIFICATIONS**

Voltage adjustability	(See Note 4)	0.8-2.5 V
Setpoint accuracy		±2.0% Vo
Line regulation		±10 mV typ.
Load regulation		±12 mV typ.
Total regulation		±3.0% Vo
Minimum load		0 A
Ripple and noise	20 MHz bandwidth	20 mV pk-pk
Temperature co-efficient	-40 °C to +85 °C	±0.5% Vo
Transient response (See Note 5)		70 µs recovery time Overshoot/undershoot 100 mV
Margin adjustment		±5.0% Vo

**EMC CHARACTERISTICS**

Electrostatic discharge	EN61000-4-2, IEC801-2
Conducted immunity	EN61000-4-6
Radiated immunity	EN61000-4-3

**GENERAL SPECIFICATIONS**

Efficiency	(See Efficiency Table)	93% max.
Insulation voltage		Non-isolated
Switching frequency		300 kHz typ. ±25 kHz
Approvals and standards		EN60950 UL/cUL60950
Material flammability		UL94V-0
Dimensions	(L x W x H)	34.80 x 15.75 x 9.00 mm 1.370 x 0.620 x 0.354 in
Weight		5 g (0.18 oz)
MTBF	Telcordia SR-332	7,092,000 hours

**ENVIRONMENTAL SPECIFICATIONS**

Thermal performance (See Note 2)	Operating ambient, temperature Non-operating	-40 °C to +85 °C -40 °C to +125 °C
MSL ('Z' suffix only)	JEDEC J-STD-020C	Level 3

**PROTECTION**

Short-circuit	Auto reset	27.5 A typ.
---------------	------------	-------------

**International Safety Standard Approvals**



UL/cUL CAN/CSA-C22.2 No. 60950-1-03/UL 60950-1,  
File No. E174104



TÜV Product Service (EN60950) Certificate No. B 04 06 38572 044  
CB Report and Certificate to IEC60950, Certificate No.  
US/8292/UL

\*Auto-track™ is a trade mark of  
Texas Instruments

OUTPUT POWER (MAX.)	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT (MIN.)	OUTPUT CURRENT (MAX.)	EFFICIENCY (MAX.)	REGULATION		MODEL NUMBER <sup>(9,10)</sup>
						LINE	LOAD	
37.5 W	2.95-3.65 V	0.8-2.5 V	0 A	15 A	93%	±10 mV	±12 mV	PTH03010

**Part Number System with Options**

**PTH03010WAST**

**Product Family**  
Point of Load Alliance Compatible

**Input Voltage**  
03 = 3.3 V

**Output Current**  
01 = 15 A

**Mechanical Package**  
Always 0

**Packaging Options**  
No Suffix = Trays  
T = Tape and Reel <sup>(8)</sup>

**Mounting Option <sup>(9)</sup>**  
D = Horizontal Through-Hole (Matte Sn)  
H = Horizontal Through-Hole (Sn/Pb)  
S = Surface-Mount (63/37 Sn/Pb pin solder material)  
Z = Surface-Mount (96.5/3.0/0.5 Sn/Ag/Cu pin solder material)

**Pin Option**  
A = Through-Hole Std. Pin Length (0.140")  
A = Surface-Mount Tin/Lead Solder Ball

**Output Voltage Code**  
W = Wide

**Output Voltage Adjustment of the PTH03010 Series**

The ultra-wide output voltage trim range offers major advantages to users who select the PTH03010. It is no longer necessary to purchase a variety of modules in order to cover different output voltages. The output voltage can be trimmed in a range of 0.8 Vdc to 2.5 Vdc. When the PTH03010 converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

**Notes**

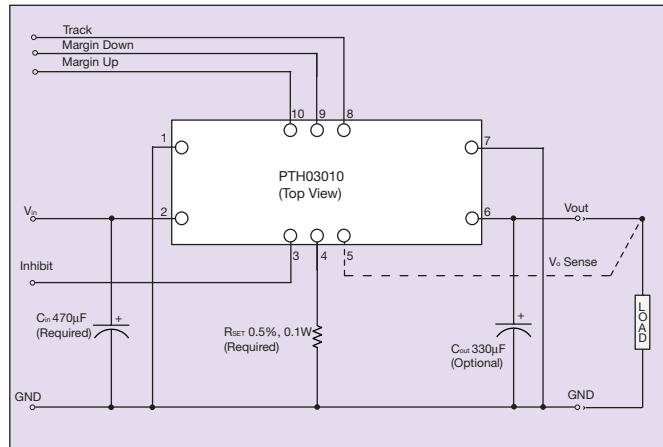
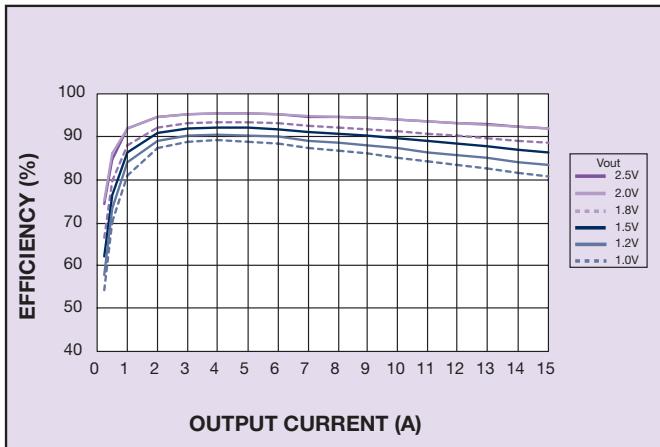
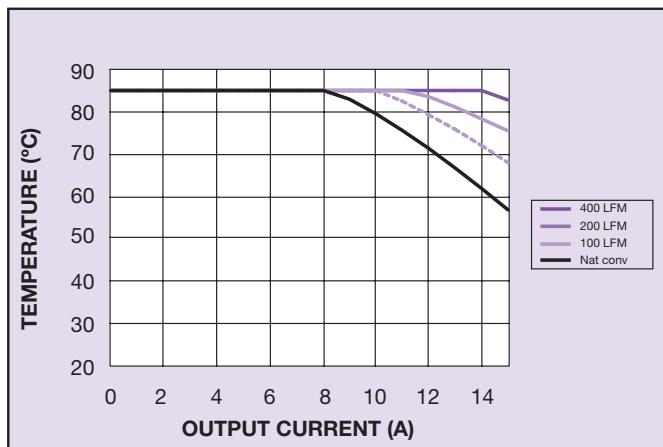
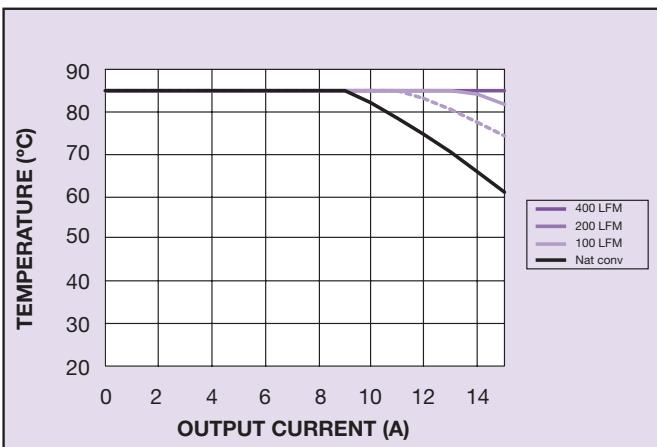
- 1 Remote ON/OFF, Positive Logic  
ON: Pin 3 open; or  $V > V_{in} - 0.5$  V  
OFF: Pin 3 GND; or  $V < 0.8$  V (min - 0.2 V).
- 2 See Figures 1 and 2 for safe operating curves.
- 3 A 470  $\mu$ F electrolytic input capacitor is required for proper operation. The capacitor must be rated for a minimum of 700 mA rms of ripple current.
- 4 An external output capacitor is not required for basic operation. Adding 330  $\mu$ F of distributed capacitance at the load will improve the transient response.
- 5 1 A/us load step, 50 to 100%  $I_{omax}$ :  $C_{out} = 330 \mu$ F.
- 6 If utilized Vout will track applied voltage by  $\pm 0.3$  V (up to  $V_o$  set point).
- 7 The pre-bias start-up feature is not compatible with Auto-Track<sup>TM</sup>. This is because when the module is under Auto-Track<sup>TM</sup> control, it is fully active and will sink current if the output voltage is below that of a back-feeding source. Therefore to ensure a pre-bias hold-off, one of the following two techniques must be followed when input power is first applied to the module. The Auto-Track<sup>TM</sup> function must either be disabled, or the module's output held off using the Inhibit pin. Refer to Application Note 150 for more details.
- 8 Tape and reel packaging only available on the surface-mount versions.
- 9 To order Pb-free (RoHS compatible) surface-mount parts replace the mounting option 'S' with 'Z', e.g. PTH03010WAZ. To order Pb-free (RoHS compatible) through-hole parts replace the mounting option 'H' with 'D', e.g. PTH03010WAD.
- 10 NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at <http://www.artesyn.com/powergroup/products.htm> to find a suitable alternative.

**EFFICIENCY TABLE ( $I_o = 10$  A)**

OUTPUT VOLTAGE	EFFICIENCY
$V_o = 1.0$ V	85%
$V_o = 1.2$ V	87%
$V_o = 1.5$ V	89%
$V_o = 1.8$ V	91%
$V_o = 2.0$ V	92%
$V_o = 2.5$ V	93%

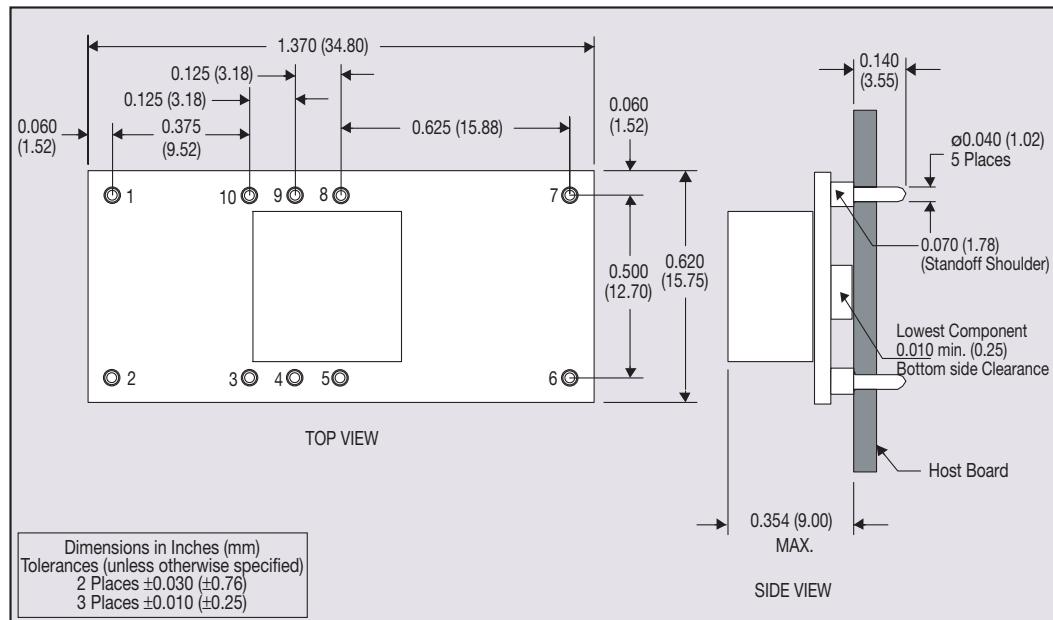
For the most current data and application support visit [www.artesyn.com/powergroup/products.htm](http://www.artesyn.com/powergroup/products.htm)

**NEW Product**



## Notes

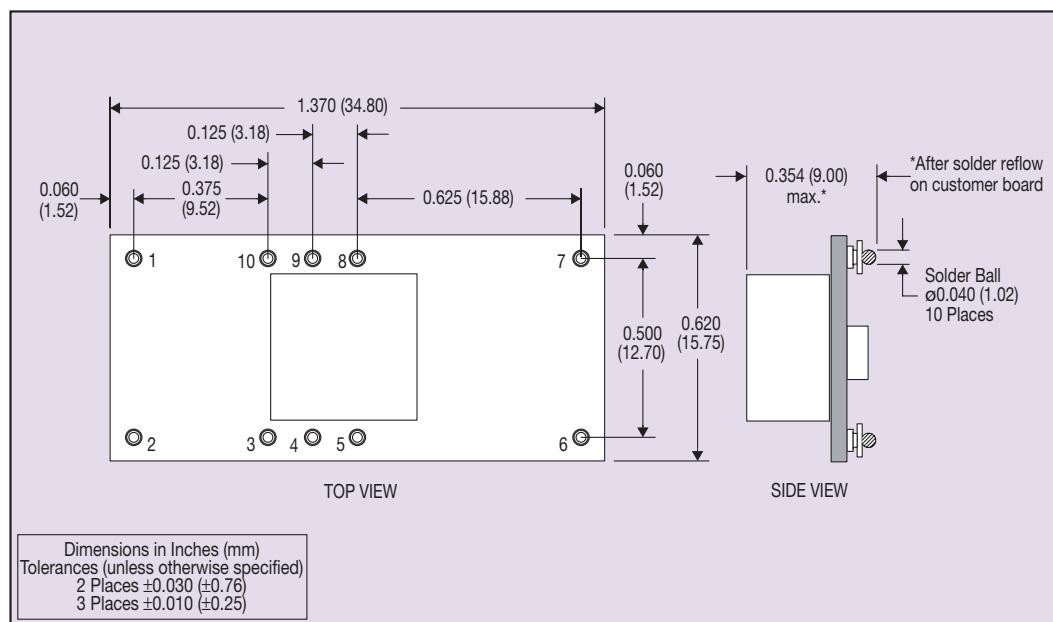
- A SOA curves represent the conditions at which internal components are within the Artesyn derating guidelines.
- B Characteristic data has been developed from actual products tested at 25 °C. This data is considered typical data for the converter.



**Figure 5 - Plated Through-Hole Mechanical Drawing**

PIN CONNECTIONS	
PIN NO.	FUNCTION
1	Ground
2	Vin
3	Inhibit*
4	Vo adjust
5	Vo sense
6	Vout
7	Ground
8	Track
9	Margin down*
10	Margin up*

\*Denotes negative logic:  
Open = Normal operation  
Ground = Function active



## Figure 6 - Surface-Mount Mechanical Drawing

Datasheet © Artesyn Technologies® 2005

The information and specifications contained in this datasheet are believed to be correct at time of publication. However, Artesyn Technologies accepts no responsibility for consequences arising from printing errors or inaccuracies. The information and specifications contained or described herein are subject to change in any manner at any time without notice. No rights under any patent accompany the sale of any such product(s) or information contained herein.

**Please consult our website for the following items: ✓ Application Note**

[www.artesyn.com](http://www.artesyn.com)

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Artesyn Embedded Technologies](#):

[PTH03010WAS](#) [PTH03010WAST](#)